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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WONG, BLANCHE	

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/992,669	LUGIL ET AL.	
	Examiner	Art Unit	
	Blanche Wong	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,16-29 and 34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,16,17,19,27-29 and 34* is/are rejected.

7)☒ Claim(s) *18 and 20-26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *Sep'06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The finality set forth in the last office action is hereby withdrawn.

2. The allowability of claims 15 and 34 has been withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-3,7,8,14,34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson et al. (U.S. Pat No. 6,122,291) in view of Miller (U.S. Pat No. 5,511,067), Lee (U.S. Pat No. 5,345,472), and Armstrong et al. (U.S. Pat No. 5,559,828).

With regard to claim 1, Robinson discloses a communication device **(device 30 in Fig. 3, col. 3, line 56)** for wideband signal transmission and reception, comprising:

a wideband transmitter **(32 in Fig. 3)** comprising at least one of a first RAM and first registers, arranged to store first parameters to operate the transmitter **("the device may be a transmitter or a transceiver and that appropriate substitution and modification of the wideband receiver circuitry and the receiver control routines ...", col. 4, lines 19-21) (see receiver analysis below)**;

a wideband receiver **("A device contains wideband receiver circuitry 32 ...", col. 3, lines 56-57)** comprising at least one of a second RAM and second registers

(program memory 38 in Fig. 38, col. 3, line 62), arranged to store second parameters **(parameters, col. 4, line 5)** to operate the receiver;

a signal acquisition component **(antenna 34 in Fig. 3, col. 3, line 57)**; and

a processor **("...a control processor 37 arranged to control and orchestrate operation of the receiver [or transmitter or transceiver]...", col. 3, line 59-60; see also Fig. 3)** in data communication with the W-CDMA transmitter, the W-CDMA receiver and the signal acquisition component, wherein the processor provides for software configuration **("program memory (for storing receiver control routines)...", col. 3, lines 62-63 and "control routines are principally applicable to the dynamic adaptation of a modulation rate for a device ...", col. 4, lines 10-11) (it is Examiner's position that control routines can be downloaded to the program memory and thus the program memory is software configurable)** of the first and second parameters.

However, Robinson fails to explicitly show CDMA transmitter and receiver; and the receiver further comprises a pulse shaping filter, a level control block configured to receive an output from the pulse shaping filter, a demodulator configured to receive an output from the level control block and track multi-path components received from a base station, and a reference demodulator configured to receive the output from the level control block and configured to estimate noise.

In an analogous art, Miller discloses a CDMA modem including a transmitter **(transmit modulator, col. 3,line 61)** and receiver **(data receiver, col. 3, line 62)**. Lee

discloses a receiver **(receiver 20 in Fig. 4, col. 5, line 28)** comprising a pulse shaping filter **(filter 303 in Fig. 4, col. 5, line 33)**, a level control block **(demodulator 305, matching filter 307, equalizer 400, DSP and controller 320, etc. in Fig. 4, col. 5, lines 27-62)** configured to receive an output from the pulse shaping filter **(see Fig. 4)**, and a demodulator **(equalizer)** track multi-path components received from a base station **(the equalizer despreads the signal, col. 5, lines 55-56)**. Armstrong discloses a reference demodulator configured to estimate noise **("reference demodulator ... as a decision circuit to eliminate noise product terms ...", col. 9, lines 41-46)**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a CDMA modem as taught in Miller to combine a transmitter and receiver in one device, a pulse shaping filter, a level control block configured to receive an output from the pulse shaping filter, a demodulator configured to receive an output from the level control block and track multi-path components received from a base station as taught in Lee, and to substitute the controller in Lee with a reference demodulator as taught in Armstrong, in Robinson's communication device. The suggestion/motivation for doing so would have been to provide for one device (Miller) where the receiver (Lee) has a pulse shaping filter, a level control block, a demodulator and a reference demodulator to eliminate noise (Armstrong, col. 9, line 46). Therefore, it would have been obvious to combine Miller, Lee and Armstrong with Robinson for the benefit of CDMA transmitter and receiver where the receiver comprises a pulse shaping filter, a level control block, a demodulator and a reference demodulator, to obtain the invention as specified in claim 1.

With regard to claim 2, Robinson further discloses a hardware initial synchronization block **(system control unit 44 in Fig. 3, col. 3,line 65)** which has at least one of reprogrammable parameters **(parameters, col. 4, line 5)** and reprogrammable algorithms **(algorithms, col. 4, line 3)**.

With regard to claim 3, Robinson further discloses a processor that controls at least one of the first RAM and the first registers, and the second RAM and the second registers **(The control processor is coupled to program memory, col. 3, lines 61-62)**.

With regard to claim 7, Robinson further discloses a processor, a transmitter and a receiver that process waveform of signals in accordance with a predetermined format, wherein the predetermined format is IS-95 **(IS-95, col. 1, line 17)**.

With regard to claim 8, Robinson further discloses a transmitter comprises synchronization hardware to slave transmit start epochs to events external to the transmitter **(synchronization, col. 5, line 33)**.

With regard to claim 14, Robinson further discloses a transmitter for multi-code transmission **(col. 1, lines 46-53)**.

With regard to claim 34, see analyses for claims 1 and 8.

5. **Claims 4-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson, Miller, Lee and Armstrong as applied to claim 1 above, and further in view of Nguyen et al. (U.S. Pat No. 6,411,661).

With regard to claim 4, the combination of Robinson, Miller, Lee and Armstrong discloses the communication device of claim 1. However, the combination fails to explicitly show a W-CDMA transmitter that comprises a first programmable pulse shaping filter, and a W-CDMA receiver that comprises a second programmable pulse shaping filter.

In an analogous art, Nguyen discloses a GMSK demodulator in a receiver in Fig. 1. It is Examiner's position that there must be a GMSK modulator in a transmitter (**"... a transmitted GMSK phase modulated carrier signal ...", col. 2, line 9 and "GMSK modulators and demodulators, col. 2, line 37).**

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a programmable pulse shaping filter in a W-CDMA transmitter and receiver in the combination of Robinson and Miller. The suggestion/motivation for doing so would have been to implement GMSK and GMSK exhibits compact spectral occupancy and a constant envelope. Nguyen, col. 1, lines 21-22. Therefore, it would have been obvious to combine Nguyen with Robinson, Miller, Lee and Armstrong for the

benefit of a programmable pulse shaping filter in a W-CDMA transmitter and receiver, to obtain the invention as specified in claim 4.

With regard to claim 5, the combination of Robinson, Miller, Lee, Armstrong and Nguyen discloses the communication device of claim 4 and further discloses a first pulse shaping filter and a second pulse shaping filter that are programmable to perform GMSK filtering (see analysis for claim 4). Robinson further discloses a transmitter and receiver that interface with a GSM front-end **(GSM, col. 1, line 35)**.

With regard to claim 6, the combination of Robinson, Miller, Lee, Armstrong and Nguyen discloses the communication device of claim 5. However, the combination fails to explicitly show a processor that performs a protocol in according with a GSM protocol stack.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a processor that performs a protocol in according with a GSM protocol stack in the combination of Robinson, Miller and Nguyen. The suggestion/motivation for doing so would have been to support GSM. See analysis for claim 5. Therefore, it would have been obvious to combine a processor that performs a protocol in according with a GSM protocol stack with the combination of Robinson, Miller, Lee, Armstrong and Nguyen, for the benefit of GSM, to obtain the invention as specified in claim 6.

6. **Claims 9-12,17,29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson, Miller, Lee and Armstrong as applied to claims 1 and 8 above, and further in view of non patent literature document – Sirius Communications Press Releases, CDMAX: Sirius Announces World's First Software-Configurable W-CDMA Core for Third Generation Wireless Handsets and Base Stations, June 14, 1999 ("Sirius").

With regard to claim 9, the combination of Robinson, Miller, Lee and Armstrong discloses the communication device of claim 8. However, the combination fails to explicitly show a PN code generator that is a RAM in which PN codes are downloaded under control of the processor.

In an analogous art, Sirius discloses a PN code generator that is a RAM in which PN codes are downloaded under control of the processor **(RAM based PN code storage on-chip, Section Reconfigurable Architecture)**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a PN code generator that is a RAM in which PN codes are downloaded under control of the processor in the combination of Robinson and Miller. The suggestion/motivation for doing so would have been to implement a highly integrated W-CDMA test chip that can be software reconfigured to support mobile station and base station configurations. Sirius, para. 1 and 2. Therefore, it would have been obvious to combine Sirius with Robinson, Miller, Lee and Armstrong, for the

benefit of a PN code generator that is a RAM in which PN codes are downloaded under control of the processor, to obtain the invention as specified in claim 9.

With regard to claim 10, the combination of Robinson, Miller, Lee and Armstrong discloses the communication device of claim 8. However, the combination fails to explicitly show a scrambling code generator that is a programmable Gold Code generator.

In an analogous art, Sirius discloses a scrambling code generator **(scrambler and scrambler code in Figure)**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a scrambling code generator in the combination of Robinson and Miller. The suggestion/motivation for doing so would have been to implement a highly integrated W-CDMA test chip that can be software reconfigured to support mobile station and base station configurations. Sirius, para. 1 and 2. Therefore, it would have been obvious to combine Sirius with Robinson, Miller, Lee and Armstrong for the benefit of a scrambling code generator, to obtain the invention as specified in claim 10.

With regard to claim 11, the combination of Robinson, Miller, Lee and Armstrong discloses the communication device of claim 8 and further discloses a QPN channel **(Quadrature, col. 1, line 49)**. However, the combination fails to explicitly show UMTS forward or return link transmission.

In an analogous art, Sirius discloses UMTS communication **(para. 1)**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a QPN channel that executes UMTS forward or return link transmission in the combination of Robinson and Miller. The suggestion/motivation for doing so would have been to implement a highly integrated W-CDMA test chip that can be software reconfigured to support mobile station and base station configurations (Sirius, para. 1 and 2). Therefore, it would have been obvious to combine Sirius with Robinson, Miller, Lee and Armstrong for the benefit of a QPN channel that executes UMTS forward or return link transmission, to obtain the invention as specified in claim 11.

With regard to claim 12, the combination of Robinson, Miller, Lee and Armstrong discloses the communication device of claim 8. However, the combination fails to explicitly show an amplification of a spreader output that performs a transmit power control.

In an analogous art, Sirius discloses an amplification of a spreader output **(output of spreaders into triangle/amplifier in Figure)**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include an amplification of a spreader output that performs a transmit power control. The suggestion/motivation for doing so would have been to enable power dissipation. Sirius, Section Key Technical Features. Therefore, it would have been obvious to combine Sirius with Robinson, Miller, Lee and Armstrong for the benefit

of an amplification of a spreader output that performs a transmit power control, to obtain the invention as specified in claim 12.

With regard to claim 17, see analysis for claim 11.

With regard to claims 28 and 29, the combination of Robinson, Miller , Lee and Armstrong discloses the communication device of claim 1. However, the combination fails to explicitly show a device that performs ranging measurement to geostationary satellites.

In an analogous art, Sirius disclose a device that performs ranging measurement to geostationary satellites **(GPS system, para. 1)** and thus satellite diversity.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a device that performs ranging measurement to geostationary satellites and satellite diversity. The suggestion/motivation for doing so would have been to implement a highly integrated W-CDMA test chip that can be software reconfigured to support mobile station and base station configurations. Sirius, para. 1 and 2. Therefore, it would have been obvious to combine Sirius with Robinson, Miller, Lee and Armstrong for the benefit of a device that performs ranging measurement to geostationary satellites and satellite diversity, to obtain the invention as specified in claims 28 and 29.

7. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson, Miller, Lee and Armstrong as applied to claim 1 above, and further in view of non-patent literature document - Philips et al., Programmable CDMA IF Transceiver ASIC for Wireless Communications, IEEE 1995 Custom Integrated Circuits Conference.

With regard to claim 13, the combination of Robinson, Miller, Lee and Armstrong discloses the communication device of claim 1. However, the combination fails to explicitly show a transmitter that comprises a time interpolator to perform sub-chip time alignments.

In an analogous art, Philips discloses a transmitter that comprises a time interpolator to perform sub-chip time alignments **("... the sampling clock ... the transmitter chain and the receiver chain ... external processor clock...", Section ASIC architecture)**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a transmitter that comprises a time interpolator to perform sub-chip time alignments.in a transmitter. The suggestion/motivation for doing so would have been to implement an ASIC. Philips, Section ASIC architecture. Therefore, it would have been obvious to combine Sirius with Robinson, Miller, Lee and Armstrong for the benefit of a transmitter that comprises a time interpolator to perform sub-chip time alignments in an ASIC, to obtain the invention as specified in claim 13.

8. **Claims 16,19,27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson, Miller, Lee and Armstrong as applied to claim 1 above, and further in view of Meng et al. (U.S. 6,641,834) (of record).

With regard to claim 16, the combination of Robinson, Miller, Lee and Armstrong discloses the communication device of claim 1. However, the combination fails to explicit show a receiver that comprises a downconverter.

Meng discloses a receiver with a downconverter **(ADC 122 in Fig. 1, col. 4, line 62)**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a downconverter in a receiver. The suggestion/motivation for doing so would have been to convert spread spectrum signal to a digital baseband signal for processing. Meng, col. 4, line 63. Therefore, it would have been obvious to combine Meng with Robinson, Miller, Lee and Armstrong for the benefit of a downconverter, to obtain the invention as specified in claim 16.

With regard to claim 19, the combination of Robinson, Miller, Lee and Armstrong discloses the communication device of claim 1. However, the combination fails to explicit show a receiver that comprises a runtime control loop.

Meng discloses a receiver with a runtime control loop **(DLL, col. 4, line 64)**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a runtime control loop in a receiver. The suggestion/motivation for doing so would have been to synchronize the digital baseband signal. Meng, col. 4, lines 64-65. Therefore, it would have been obvious to combine Meng with Robinson,

Miller, Lee and Armstrong for the benefit of a runtime control loop, to obtain the invention as specified in claim 19.

With regard to claim 27, see analysis for claim 19.

Allowable Subject Matter

9. Claims 18,20-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blanche Wong whose telephone number is 571-272-3177. The examiner can normally be reached on Monday through Friday, 830am to 530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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